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according to experiments made by Durante and by Zahn. In a short time (in man in three minutes) after the blood is withdrawn from the veins, or after death, coagulation of the blood commences. Coagulation can be hindered or suspended in various ways, such as contact with living healthy vessels (Lister, Bruecke), exposure to low temperature (at 0° C.), or by the addition of solutions of certain neutral salts (sodium chloride, sulphate, carbonate; magnesium sulphate, etc.). If peptone is mixed with the blood, its clotting is suspended; and Dr. Haycraft of Edinburgh has kept it fluid for a longer time by adding an aqueous extract prepared from the intestines of leeches. It may be also noted that a German physiologist, Professor Gruenhagen, some time ago observed that blood, if collected in glycerine, remained fluid so long as a mixture did not take place.

Now, Mr. Freund has found a very simple method to prevent the coagulation. He collected the blood, drawn from the vein of an animal, under oil, and it remained fluid for many days. In further experiments it was found, that, in arterial blood collected in a glass vessel whose walls were continuously coated with a film of vaseline, the fibrine did not separate, even when stirred or agitated with a vaseline-coated glass rod; but, as soon as the blood was poured into an ordinary receptacle, the fibrine was immediately coagulated. It was further observed by Freund that the presence of minute foreign bodies, such as particles of dust, was sufficient to produce clotting. These experiments were made, both at ordinary temperatures and at that of the body, with equal success. In one of the experiments which I had the opportunity of seeing, a glass tube coated with oil was inserted into the carotid artery of a dog, while a dry tube was connected with the crural artery of the same animal. The blood in the latter was clotted in fifteen minutes; but the pulsations of the blood column in the oiled tube were perceptible for more than two hours and a half. Fresh blood contained in fish-bladders, or parchment tubes, which had been previously soaked in a 0.6 per cent solution of chloride of sodium, and afterwards covered with a like solution, remained fluid for many days.

Mr. Freund has made a preliminary communication on his researches, which will be continued in an early number of the *Wiener medicinische jahrbücher*.

V. C.

Vienna, Feb. 16.

NOTES AND NEWS.

THE teachers' course in chemistry at Harvard during the summer of 1886 will be under the di-

rection of Dr. Comey, and will open July 5, and close Aug. 14. Instruction will be given in general chemistry, qualitative analysis, quantitative analysis, and organic chemistry. A course in mineralogy will also be given. The fee for the course is twenty-five dollars. An additional charge, which has averaged from five to six dollars, is made for the material and apparatus consumed by each student. The summer classes are offered the same facilities for laboratory work as are open to students during the academic year. The college library is open for the use of students in these courses. For further information address Arthur M. Comey, Harvard chemical laboratory, Cambridge, Mass.

— On the 23d of September, 1882, Friedrich Wöhler died, in his eighty-third year, one of the last and one of the most eminent of the chemists whose lives and labors connected the early formative age of the science with that of its recent wide expansion. As investigator and teacher, as author and scientific correspondent, he deserved, as few have done of those who have passed away in our time, that his memory be held in honor by those who care for the science of chemistry. Soon after his death a movement was begun in Germany, originating with the German chemical society, for the collection of an adequate sum of money with which to erect in Göttingen a statue to Wöhler, as a permanent monument, on the spot where most of his life's work was done. The subscription has reached the sum of about four thousand dollars, but this is not yet sufficient for the purpose in view. The co-operation of American chemists has recently been asked by a member of the local committee in Göttingen, in a letter addressed to one of the undersigned, who have formed a committee for the United States in order to give practical shape to action in this country. Contributions may be sent to any one of the following: James C. Booth, U. S. mint, Philadelphia; J. W. Mallet (chairman), University of Virginia; C. F. Chandler, Columbia college, New York; H. B. Nason, Rensselaer polytechnic institute, Troy; F. Frerichs, Mallinckrodt chemical works, St. Louis; Ira Remsen (secretary and treasurer), Johns Hopkins university; Wolcott Gibbs, Cambridge; W. B. Rising, University of California, Berkeley; E. P. Harris, Amherst, Mass.; S. P. Sadtler, University of Pennsylvania, Philadelphia; J. W. Langley, Ann Arbor; C. U. Shepard, jun., Charleston, S. C.; F. Mahla, corner 21st Street and Stewart Avenue, Chicago; Eugene A. Smith, University of Alabama, Tuscaloosa.

— Four additional sheets of the New Jersey topographical map are lately issued, making ten

now published out of the total seventeen. The unfinished sheets cover the inland area of the state, along the lower Delaware. The arrangement of the map sheets was illustrated in *Science* (vii. No. 155). A map of the whole state, five inches to a mile, will form an eighteenth sheet.

—The fifth annual report of the U. S. geological survey, just issued, contains a number of valuable works by well-known authors, and is richly illustrated by excellent engravings. In addition to the papers already noticed, there is one by Prof. O. C. Marsh, on the gigantic mammals of the order Dinocerata, — an abstract of his volume on the same subject, already published, — and one by R. D. Irving, entitled “Preliminary paper on an investigation of the archæan formation of the north-western states,” which contains the results of field and laboratory investigation of the problems of correlation, structure, and genesis.

—Professor Koch of Berlin is issuing a *Zeitschrift für Hygiene*, for the publication of his own researches, which have hitherto been made public in the official documents of the imperial health office, as well as for the publication of the results of investigations undertaken under his direction in the Hygienic institute lately established in connection with the university.

—After many denials, it is again authoritatively announced that Professor Du Bois-Reymond is at work on a history of natural science in the nineteenth century.

—The strips of papyrus that were taken from an Egyptian excavation several years ago, and placed in the Berlin museum, are said to contain parts of the great work of Aristotle on administration, and, in particular, passages from the most valuable part of that work, — that treating of the civil administration of Athens.

—J. H. Darwin, son of the late Charles Darwin, is understood to have his father's biography nearly ready for publication. It is believed that the book will contain much of interest concerning the naturalist's domestic life, and his methods of carrying on his investigations and researches.

—At the last meeting of the Academy of political science, Columbia college, Hon. John Jay Knox, ex-comptroller of the treasury, read a valuable paper on ‘Legal tender in the United States.’ It is not improbable that Mr. Knox's paper will be published in an early number of the new *Political science quarterly*.

—The annual report of the Connecticut agricultural experiment-station, for 1885, deals almost wholly with analyses of feeding-stuffs and fertilizers. The laws of Connecticut require analyses

to be made of all commercial fertilizers annually. The results of such, accomplished at this station in past years, have been of real value to the farmers and gardeners throughout the state. The larger part of the matter upon food-stuffs is compiled, though evidently useful. The original portion, however, is not inconsiderable. In these reports one is impressed with the almost purely chemical nature of the work accomplished; and the *personnel* of the station is composed wholly of chemists. While there can be no question of the great importance of agricultural chemistry, it certainly seems that the work of an agricultural experiment-station should not be so exclusively limited. One must think that a botanist and entomologist would be a desirable accession to the already able staff.

—Messrs. Romanoffski and Mushketoff have published a geological map of Russian Turkestan in six sheets, on a scale of 1 : 1,260,000. Besides surface geology, this chart shows the area occupied by ancient and modern glaciers, the location of mines, and the altitude of all important points.

—There have been received to date at this office the following subscriptions to the Heer memorial: Prof. Jules Marcou, five dollars; Prof. Asa Gray, five dollars; Mr. S. H. Scudder, five dollars.

—The next annual session of the National academy of sciences will be held in Washington, at the national museum, commencing Tuesday, April 20, at 11 A.M.

LETTERS TO THE EDITOR.

*** Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.

Certain questions relating to national endowment of research in this country, and their importance.

WE have before us for our consideration at the present time, in this country, a number of questions of the highest import to science, of which it may be said that they are as yet in a formative stage. By this is meant, that the United States, as now representing one of the distinct nations of the world, has not yet expressed a national opinion upon them, after the manner usually adopted by nations for expressing opinions which may be said to be national, and which the nation stands willing to defend in opposition to the opinions of other peoples. Of the several questions that I refer to, none can claim greater weight than that one which takes into consideration the extent to which our government should endow scientific research.

This is really a point in political economy of the utmost importance, as it affects the national welfare, and has much to do with the formation of the national character. To those who have watched the growth, and approach towards a decision, of this issue during the past twenty-five years, the fact